What is claimed is:

1. A method of preparing an organometallic compound comprising the step of: reacting a metal halide of the formula R_mMX_{4-m} with a Group IIIA compound of the formula $R^1{}_nM^1X^1{}_{3-n}$ in the presence of a catalyst chosen from a tertiary amine, a tertiary phosphine and mixtures thereof in an organic solvent to provide an alkylmetal compound, wherein each R is independently chosen from H, alkyl, alkenyl, alkynyl and aryl; M is chosen from a Group IVA metal and a Group VIA metal; each X is independently a halogen; each R^1 is independently chosen from (C_1-C_6)alkyl; M^1 is a Group IIIA metal; each X^1 is independently a halogen; m = 0-3; and n = 1-3.

2. The method of claim 1 wherein M is chosen from silicon, germanium, tin, tellurium and selenium.

3. The method of claim 1 wherein M^1 is chosen from boron, aluminum, gallium, indium and thallium.

4. The method of claim 1 wherein the tertiary amine has the formula $NR^4R^5R^6$, wherein R^4, R^5 and R^6 are independently selected from (C_1-C_6)alkyl, di(C_1-C_6)alkylamino-substituted (C_1-C_6)alkyl and phenyl, and wherein R^4 and R^5 may be taken together along with the nitrogen to which they are attached to form a 5-7 membered heterocyclic ring.

5. The method of claim 1 wherein the metal halide and the Group IIIA compound are present in a mole ratio of 1:0.1 to 1:5.

6. The method of claim 1 wherein the alkylmetal compound comprises one or more halogens.

7. The method of claim 6 further comprising the step of reacting the alkylmetal compound with a reducing agent to provide an alkylmetal hydride.

8. The method of claim 6 further comprising the step of reacting the alkylmetal compound with an alkylating agent or arylating agent.

9. The method of claim 6 further comprising the step of reacting the alkylmetal compound with a second Group IIIA compound of the formula $R^1{}_nM^1X^1{}_{3-n}$ in the presence of a tertiary amine.

10. The method of claim 1 wherein the reaction is batch, semi-continuous or continuous.